STREETS OF WEST PRYOR
CORE & SHELL BUILDING

1020 NORTHWEST PRYOR ROAD
LEE'S SUMMIT, MO 64081

Fire Alarm System Drawings

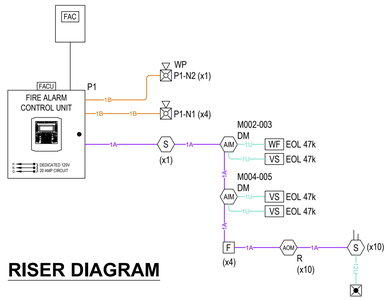
RELEASED FOR CONSTRUCTION
As Noted on Plan Review

Lee's Summit Fire Department
Lee's Summit, Missouri

06/24/2024

DEVICE LEGEND					
SYMBOL	QTY	MANUFACTURER	PART NO	DESCRIPTION	MOUNTING
FACU FAC	1	NOTIFIER	NFW-50XGV	FIREWARDEN-50X (NFW-50X) INTELLIGENT ADDRESSABLE FACU WITH CLSS SGLTE-M FIRE COMMUNICATOR FOR VERIZON	BACKBOX WITH KEY LOCKED DOOR IS INCLUDED. 120VAC DEDICATED 20 AMPERE CIRCUIT AND EARTH GROUND IS REQUIRED. USE EMERGENCY POWER IF AVAILABLE. CABINET DIMENSIONS: 19"H X 16.65"W X 5.2"D. FOR SEMI-FLUSH MOUNTING USE OPTIONAL TR-CE-B BLACK TRIM RING.
DOC	1	SPACE AGE ELECTRONICS	SSU01690	FIRE ALARM DOCUMENT CABINET W/8GB USB DRIVE (ACE-11), BLACK WITH CUSTOM LOGO	SURFACE MOUNT 12" WIDE X 13" TALL X 2-1/4" DEEP
S	1	NOTIFIER	FSP-951 W/B300-6	ADDRESSABLE LOW-PROFILE PHOTOELECTRIC SMOKE DETECTOR. FLASHSCAN ONLY.	4" OCTAGON BOX 2-1/8" DEEP.
F	4	NOTIFIER	NBG-12LX	DUAL-ACTION ADDRESSABLE PULL STATION. INCLUDES KEY LOCKING FEATURE.	4" SQUARE BOX WITH A TWO GANG FRAME. IF SURFACE MOUNTING IS REQUIRED, USE SB-10 BOX.
S	10	NOTIFIER	DNR W/FSP-951R	INTELLIGENT NON-RELAY PHOTOELECTRIC DUCT DETECTOR/ FSP-951R, FLASHSCAN AND CLIP MODE.	MOUNTS ON AIR DUCT. SEE MFR'S RECOMMENDATIONS FOR MOUNTING DETAILS AND AIR VELOCITY REQUIREMENTS. ANY DEVIATIONS MUST BE APPROVED BY THE "AUTHORITY HAVING JURISDICTION".
	10	NOTIFIER	RTS151KEY	REMOTE TEST STATION W/ SWITCH, ALARM & POWER LEDS, KEY RESET	ONE GANG BOX 2-1/2" DEEP.
AIM DM	2	NOTIFIER	FDM-1	ADDRESSABLE DUAL MONITOR MODULE W/ FLASHSCAN, 2 CLASS B	4" SQUARE BOX 2-1/8" DEEP WITH EXTENSION RING. OVERALL MINIMUM DEPTH 3 5/8". NO FRAME REQUIRED.
AOM R	10	NOTIFIER	FRM-1	ADDRESSABLE RELAY MODULE W/ FLASHSCAN, 2 FORM-C DRY CONTACTS	4" SQUARE BOX 2-1/8" DEEP WITH EXTENSION RING. OVERALL MINIMUM DEPTH 3 5/8". NO FRAME REQUIRED.
WP	1	SYSTEM SENSOR	P2RK	2-WIRE HORN STROBE, STANDARD CD, RED, OUTDOOR	INCLUDES SA-WBB WALL MOUNT SURFACE BOX. FOR CEILING MOUNT ORDER ADD. GASKET SA-WBB-G. 2 THREADED HOLES ARE PROVIDED IN THE SIDES OF THE BOX FOR ¾-INCH CONDUIT ADAPTERS. KNOCKOUT PLUGS IN THE BACK OF THE BOX CAN BE USED FOR ½ OR ¾ INCH REAR ENTRY.
	4	SYSTEM SENSOR	P2RLED	2-WIRE, HORN STROBE, RED	4" SQUARE BOX 1-1/2" DEEP. OR SURFACE MOUNT TO SBBRL OR SBBWL.
WF	2	GENERIC	WATERFLOW SWITCH		PROVIDED BY SPRINKLER CONTRACTOR
VS	2	GENERIC	VALVE TAMPER SUPERVISORY SWITCH		PROVIDED BY SPRINKLER CONTRACTOR

CABLE AND WIRE LEGEND			
LABEL	AWG	RESISTANCE (MFT)	DESCRIPTION
A	18	7.77	18 AWG, 1 PAIR, SOLID, TWISTED, OVERALL JACKET (SLC - INITIATION)
B	14	3.07	14 AWG, 1 PAIR, SOLID, OVERALL JACKET (NAC - SIGNAL/STROBE)
J	18	7.77	18 AWG, 1 PAIR, SOLID, TWISTED, SHIELDED (DATA)
U	18	7.77	18 AWG, 1 PAIR, SOLID, TWISTED, OVERALL JACKET (CONVENTIONAL INITIATING DEVICE)
2U	18	7.77	18 AWG, 2 PAIR, SOLID, TWISTED, OVERALL JACKET (CONVENTIONAL INITIATING DEVICE)



RISER DIAGRAM

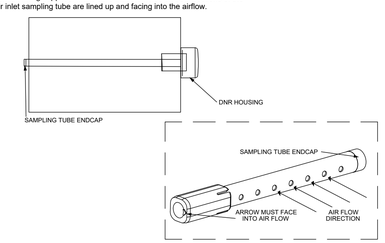
SHEET LEGEND

SHEET NUMBER	SHEET REFERENCE NUMBER	DESCRIPTION
1	FA001	COVER SHEET, LEGEND & RISER DIAGRAM
2	FA101	FIRE ALARM PLAN
3	FA102	BATTERY AND VOLTAGE DROP CALCULATIONS / DEVICE CONNECTION DETAILS / FIRE ALARM MATRIX

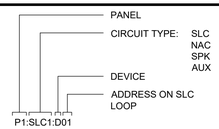
INSTALLING CONTRACTOR WILL NEED TO PROVIDE ACCURATE AS-BUILT INFORMATION TO TECH ELECTRONICS. THIS SHALL INCLUDE ALL WIRING TYPE AND ROUTING INFORMATION FOR ALL ADDRESSABLE LOOP (SLC), HORN, SPEAKER AND STROBE (NAC) AND ZONE (IDC) CIRCUITS. THE AS-BUILT DRAWINGS SHALL SHOW THE EXACT QUANTITY AND PLACEMENT OF ALL DEVICES AND EACH EXACT DEVICE ADDRESS INSTALLED, IF APPLICABLE. ALL DELETED, ADDED AND CHANGES MUST BE SHOWN.

ALL 120VAC POWER SHALL BE NOTED WITH THE CIRCUIT BREAKER NUMBER, SIZE OF BREAKER AND THE LOCATION OF THE CIRCUIT BREAKER PANEL. THE CIRCUIT BREAKER MUST BE LOCKED. ALL ABOVE INFORMATION IS REQUIRED BY AND SHALL BE PROVIDED PER NFPA 72. SEE CURRENTLY ENFORCED ORDINANCE IF NECESSARY.

Per NFPA sampling tubes over 3 feet long should be supported at the end opposite of the duct detector. In ducts wider than 8 feet, work must be performed inside the duct to couple the other section of the sampling tube to the section already installed using the ½ inch conduit fitting supplied. Make sure that the holes on both sections of the air inlet sampling tube are lined up and facing into the airflow.



DUCT DETECTOR MOUNTING



ADDRESS LABEL CLARIFICATION

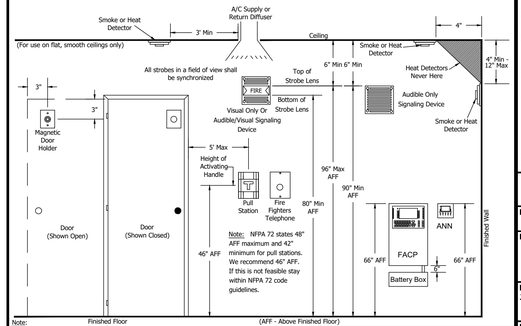
ABBREVIATIONS

AHJ - AUTHORITY HAVING JURISDICTION
DD - DUCT DETECTOR
DH - DOOR HOLDER
DUA- DWELLING UNIT ALARM
E- PSD/HD W/ ELEV INTERFACE
ELEV1- PRIMARY ELEVATOR RECALL
ELEV2- ALTERNATE ELEVATOR RECALL
EST- ELEVATOR SHUNT TRIP
EXG - EXISTING
FH- ELEVATOR FIREHAT
FL - FIELD LOCATE
FM- FLUSH MOUNT
FGS- FIRE PLACE GAS SHUTOFF
FSD- FIRE/SMOKE DAMPER
KB- KNOX BOX
KH- KITCHEN HOOD
PIV- SPRINKLER POST INITIATOR VALVE
NT- NAC TRIGGER
RD- RETURN DUCT
RL- RELOCATE
RTU- ROOF TOP UNIT
SD- SUPPLY DUCT
TS - TAMPER SWITCH
VL - VERIFY LOCATION
WF - WATERFLOW
WP- WEATHER PROOF

GENERAL INSTALLATION NOTES:

1. INSTALLATION MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE, OR LOCAL LAWS, REGULATIONS, CODES, AND SPECIFICATIONS. THIS SYSTEM SHALL BE IN STRICT CONFORMANCE WITH THESE DRAWINGS; 2018 IBC/IFC ; NFPA 72 2016 EDITION; NFPA 70, 2017 EDITION; AND AHJ.
2. WHERE CONDUCTORS ARE RUN IN CONDUIT, USE ONLY APPROVED CABLE WITHIN RACEWAYS, PIPES OR CONDUITS. ALL SHIELDED WIRE MUST BE CONTINUOUS THROUGHOUT CIRCUIT, ALL SHIELDS SHALL BE ISOLATED FROM GROUND, ALL SHIELDS SHALL TERMINATE AT THE FIRE ALARM CONTROL PANEL (FACU) ONLY.
3. PER NFPA 72 2016, 17.7.1.11.1 - WHERE DETECTORS ARE INSTALLED FOR SIGNAL INITIATION DURING CONSTRUCTION, THEY SHALL BE CLEANED AND VERIFIED TO BE OPERATING IN ACCORDANCE WITH THE LISTED SENSITIVITY, OR THEY SHALL BE REPLACED PRIOR TO THE FINAL COMMISSIONING OF THE SYSTEM. WHERE DETECTORS ARE INSTALLED BUT NOT OPERATIONAL DURING CONSTRUCTION, THEY SHALL BE PROTECTED FROM CONSTRUCTION DEBRIS, DUST, DIRT, AND DAMAGE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND VERIFIED TO BE OPERATING IN ACCORDANCE WITH THE LISTED SENSITIVITY, OR THEY SHALL BE REPLACED PRIOR TO THE FINAL COMMISSIONING OF THE SYSTEM. WHERE DETECTION IS NOT REQUIRED DURING CONSTRUCTION, DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER ALL OTHER CONSTRUCTION TRADES HAVE COMPLETED CLEANUP.
4. ALL FIRE ALARM SYSTEM WIRING SHALL BE CLEAR FROM SHORTS, OPENS AND GROUNDS.
5. NOTIFICATION CIRCUIT WIRE RUNS ARE CRITICAL. ANY INCREASE IN LENGTH OF WIRE MAY AFFECT CIRCUIT CONFIGURATIONS.

RECOMMENDED MOUNTING HEIGHTS PER CODES AND STANDARDS



Note:
1. Contact Tech Electronics if you have questions concerning these instructions, discrepencies, or if your specific conditions require a solution not addressed by this document.
2. Refer to the proper device installation instructions for backbox mounting height

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Heights_and_Mounting.dwg:B
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5/28/2024

BC ENGINEERS INCORPORATED
5720 Reeder Shawnee, Ks. 66203 (913)262-1772

NO.	DATE:	REVISION DESCRIPTION:

PROJECT NAME / CUSTOMER / LOCATION:
STREETS OF WEST PRYOR
1020 NORTHWEST PRYOR ROAD
LEE'S SUMMIT, MO 64081

SYSTEM DESCRIPTION:
NEW FIRE ALARM SYSTEM

PROJECT MANAGER:
BOJAN BALTIC
(785) 430-5824

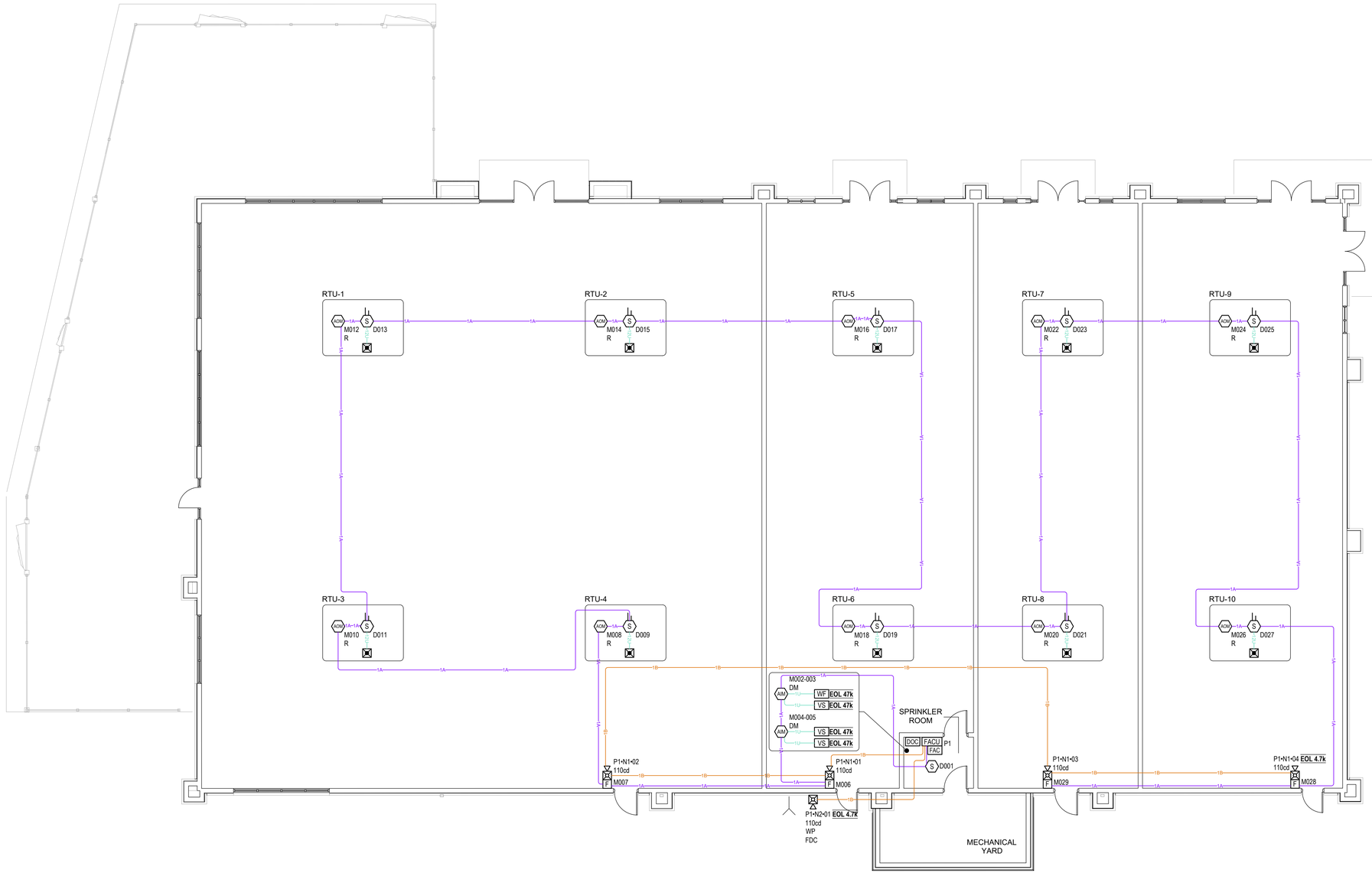
DESIGNER: RN
DRAFTER: VGM

DRAWING #:
FA001

PROJECT JOB#: PJ2403210005

DATE: 04/26/2024

ISSUED FOR: CONSTRUCTION



FLOOR PLAN - FIRE ALARM

1/8" = 1'-0"

0 4' 8' 16'

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5/28/2024

STATE OF MISSOURI
DARIN T. SEIDEL
NUMBER PE-2009030078
PROFESSIONAL ENGINEER

BC ENGINEERS INCORPORATED

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1020 NORTHWEST PRYOR ROAD
LEE'S SUMMIT, MO 64081

SYSTEM DESCRIPTION: NEW FIRE ALARM SYSTEM

PROJECT MANAGER: BOJAN BALTIC (785) 430-5824

DESIGNER: RN

DRAFTER: VGM

DRAWING #: FA101

PROJECT JOB#: PJ2403210005

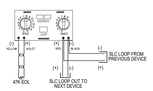
DATE: 04/26/2024

ISSUED FOR: CONSTRUCTION

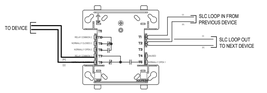
P1 N1 POINT-TO-POINT REPORT							CIRCUIT SETTINGS		TOTALS	
							Starting Calculation Voltage:	20.4	Max. Voltage Drop:	**0.2**
							Min. Operational Voltage:	16	End Of Line Voltage:	**20.2**
							Max. Circuit Current (A):	2.5	Voltage Drop Percent:	**0.99 %**
							Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	**0.376**
Circuit Wiring Properties: 'B' TP1690 14 AWG, 14 AWG, 1 Pair, Solid, Overall Jacket (NAC - Signal/Strobe)							Total Circuit Length (Ft):	158	Spare Current (A):	**2.124**
Distance measured using drawn segment lengths with 10.00 % additional length calculated							Total Circuit Resistance (Ω):	0.972887	Spare Current (A) Percent:	**84.96 %**
Device Label	**Part No.**	**Description**	**Device Current (A)**	**Remaining Current (A)**	**Dist. From Previous (Ft)**	**Resistance From Previous (Ω)**	**Voltage Drop From Previous**	**Voltage At Device**	**Total Voltage Drop**	**Voltage Drop Percent**
P1•N1•01	P2RLED	2-Wire, Horn Strobe, Red 110cd	0.094	**0.376**	18	**0.108373**	**0.04**	**20.36**	**0.04**	**0.20 %**
P1•N1•02	P2RLED	2-Wire, Horn Strobe, Red 110cd	0.094	**0.282**	34	**0.211063**	**0.06**	**20.3**	**0.1**	**0.49 %**
P1•N1•03	P2RLED	2-Wire, Horn Strobe, Red 110cd	0.094	**0.188**	68	**0.417624**	**0.08**	**20.22**	**0.18**	**0.88 %**
P1•N1•04 EOL 4.7k	P2RLED	2-Wire, Horn Strobe, Red 110cd	0.094	**0.094**	38	**0.235827**	**0.02**	**20.2**	**0.2**	**0.99 %**
Calculation Methods:										
Resistance From Previous (Ω) = Wire Resistance (Ω/Ft) x 2 x Dist. From Previous (Ft)										
Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)										

P1 N2 POINT-TO-POINT REPORT							CIRCUIT SETTINGS		TOTALS	
							Starting Calculation Voltage:	20.4	Max. Voltage Drop:	**0.03**
							Min. Operational Voltage:	16	End Of Line Voltage:	**20.37**
							Max. Circuit Current (A):	2.5	Voltage Drop Percent:	**0.16 %**
							Wire Resistance (Ω/kFt):	3.07	Total Circuit Current (A):	**0.212**
Circuit Wiring Properties: 'B' TP1690 14 AWG, 14 AWG, 1 Pair, Solid, Overall Jacket (NAC - Signal/Strobe)							Total Circuit Length (Ft):	25	Spare Current (A):	**2.288**
Distance measured using drawn segment lengths with 10.00 % additional length calculated							Total Circuit Resistance (Ω):	0.155958	Spare Current (A) Percent:	**91.52 %**
Device Label	**Part No.**	**Description**	**Device Current (A)**	**Remaining Current (A)**	**Dist. From Previous (Ft)**	**Resistance From Previous (Ω)**	**Voltage Drop From Previous**	**Voltage At Device**	**Total Voltage Drop**	**Voltage Drop Percent**
P1•N2•01 EOL 4.7k	P2RK	2-Wire Horn Strobe, Standard cd, Red, Outdoor 110cd	0.212	**0.212**	25	**0.155958**	**0.03**	**20.37**	**0.03**	**0.16 %**
Calculation Methods:										
Resistance From Previous (Ω) = Wire Resistance (Ω/Ft) x 2 x Dist. From Previous (Ft)										
Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)										

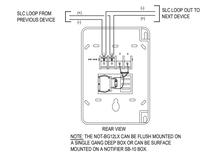
PANEL P1 (NFW-50X) BATTERY CALCULATION								
(SECONDARY POWER SOURCE REQUIREMENTS)								
PANEL POWER SUPPLY MAX CURRENT = 2.7A					TOTAL USED CAPACITY (IN ALARM) = 0.9923A (36.75 %)			
					STANDBY CURRENT (AMPS)		SECONDARY ALARM CURRENT (AMPS)	
PANEL COMPONENTS		**QTY**	**PART NO.**	**DESCRIPTION**	**CURRENT DRAW (A)**	**TOTAL (A)**	**CURRENT DRAW (A)**	**TOTAL**
		1	NFW-50X Main Board	Fire Alarm Control Panel Main Board	0.141	**0.141**	0.257	**0.257**
CIRCUIT	**SYMBOL**	**QTY**	**PART NO**	**DESCRIPTION**	**CURRENT DRAW (A)**	**TOTAL (A)**	**CURRENT DRAW (A)**	**TOTAL (A)**
P1•1	S	10	DNR w/FSP-951R	Intelligent Non-Relay Photoelectric Duct Detector/ FSP-951R. FlashScan and CLIP mode.	0.0002	**0.002**	0.0045	**0.045**
	AM DM	2	FDM-1	Addressable Dual Monitor Module W/ FlashScan, 2 Class B	0.00075	**0.0015**	0.0064	**0.0128**
	KM R	10	FRM-1	Addressable Relay Module W/ FlashScan, 2 Form-C Dry Contacts	0.000255	**0.00255**	0.0065	**0.065**
	S	1	FSP-951 w/B300-6	Addressable low-profile photoelectric smoke detector. FlashScan only.	0.0002	**0.0002**	0.0045	**0.0045**
	F	4	NBG-12LX	Dual-action addressable pull station. Includes key locking feature.	0.000375	**0.0015**	0.005	**0.02**
P1•N1		4	P2RLED	2-Wire, Horn Strobe, Red 110cd	0	**0**	0.094	**0.376**
P1•N2	WP	1	P2RK	2-Wire Horn Strobe, Standard cd, Red, Outdoor 110cd	0	**0**	0.212	**0.212**
					TOTAL STANDBY (A)	**0.14875**	TOTAL ALARM (A)	**0.9923**
					REQUIRED STANDBY TIME = 24 HOURS			
					REQUIRED ALARM TIME = 5 MINUTES			
SECONDARY STANDBY LOAD (A)				**0.14875**	24		**3.57**	
SECONDARY ALARM LOAD (A)				**0.9923**	0.08		**0.08**	
STANDBY AND ALARM SUBTOTAL (AMP HOURS)					**3.65**			
DERATING FACTOR					1.2			
SECONDARY LOAD REQUIREMENTS (AMP HOURS)					**4.38**			
PROVIDE (2) 12V 7AH BATTERIES								
*BATTERY BOX SIZE CAPACITY NOT SPECIFIED. REFER TO MANUFACTURER DOCUMENTATION.								



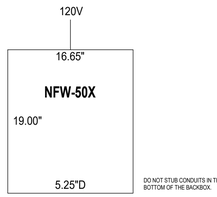
FMM-101
MINI MONITOR MODULE



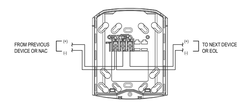
FRM-1
RELAY MODULE



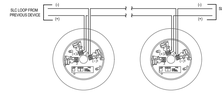
NBG-12LX



PANEL DETAIL

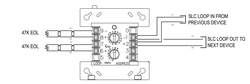


P2RLED/P2RK HORN/STROBE



FSP-951 WITH B300-6 BASE

CELL-MOD
CLSS GATEWAY



FDM-1 DUAL MONITOR MODULE

SYSTEM INPUTS

SYSTEM INPUTS		CONTROL UNIT ANNUNCIATION A	ACTUATE COMMON ALARM SIGNAL INDICATOR B	ACTUATE COMMON ALARM SIGNAL C	ACTUATE AUDIBLE ALARM SIGNAL D	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR E	ACTUATE AUDIBLE SUPERVISORY SIGNAL F	NOTIFICATION G	ACTUATE COMMON TROUBLE SIGNAL INDICATOR H	ACTUATE AUDIBLE TROUBLE SIGNAL I	ACTUATE AUDIBLE NOTIFICATION APPLIANCES J	ACTUATE VISIBLE NOTIFICATION APPLIANCES K	DISPLAY PRINT CHANGE OF STATUS L	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION M	TRANSMIT FIRE TROUBLE SIGNAL TO SUPERVISING STATION N	TRANSMIT FIRE SUPERVISORY SIGNAL TO SUPERVISING STATION O	ACTUATE NOTIFICATION APPLIANCE ABOVE FIRE DEPARTMENT CONNECTION P	REQUIRED SAFETY CONTROLS Q	SHUTDOWN ALL AIR HANDLING UNIT(S) R	SHUTDOWN ASSOC AIR HANDLING UNIT(S) S	
1	MANUAL PULL STATION	•	•					•	•	•	•				•						1
2	SMOKE DETECTOR	•	•					•	•	•	•				•						2
5	WATERFLOW SWITCH	•	•					•	•	•	•			•	•						5
12	DUCT DETECTOR (AT HVAC UNIT)			•	•					•		•				•					12
14	VALVE TAMPER SWITCH			•	•					•		•									14
15	FIRE ALARM CONTROL PANEL AC POWER FAILURE					•	•			•			•								15
16	FIRE ALARM CONTROL PANEL LOW BATTERY					•	•			•			•								16
17	OPEN CIRCUIT					•	•			•			•								17
18	GROUND FAULT					•	•			•			•								18
19	NOTIFICATION APPLIANCE CIRCUIT SHORTED					•	•			•			•								19
20	ALL OTHER TROUBLES					•	•			•			•								20
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O					

SYSTEM OUTPUTS

• PERFORM OPERATION/REPORT DEVICE STATUS

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5/28/2024

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1020 NORTHWEST PRYOR ROAD
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PROJECT MANAGER:
BOJAN BALTIC
(785) 430-5824

DESIGNER: RN
DRAFTER: VGM

DRAWING #:
FA102

PROJECT JOB#: PJ2403210005

DATE: 04/26/2024

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